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SHANE DENSON

Videogames, game franchises, gaming cultures, and the activity of gameplay itself—all of these are marked by seriality as a crucial industrial and commercial but also cultural and formal logic (Denson and Jahn-Sudmann 2013; Boluk and Lemieux 2017, pp. 173-206). In this respect, contemporary digital games and gaming are still governed by the serialized forms of popular culture that emerged in the nineteenth century, articulating a productive and easily exploitable formula of modularized (or episodic) repetition and variation that forms the core of what Horkheimer and Adorno would later diagnose as the politically regressive 'culture industry' that streamlined the production of popular music, genre literature, comics, film serials and blockbuster franchises, television programs, and other media of the twentieth century (2002, pp. 94-136).[1] Regardless, though, of whether the culture industry was ever as monolithic—or the ideological force of its serialized logic ever as focused or as powerful—as the first-generation Frankfurt School thinkers would have us believe, seriality functions in qualitatively different ways in videogames and the interactive digital media environments of which they are a part. The difference, which I will explore in this essay with reference to the figure of Batman and his move from analog to digital and ludic media, can be summarized in terms of a shift from a 'parergonal' to what I call a 'parergodic' logic.

In broad outline, this shift can be understood as follows. Like many of the heroes and antiheroes of the nineteenth and twentieth centuries, Batman is a Janus-faced figure who alternates between a secret identity (the caped crusader) and a public persona (the billionaire Bruce Wayne, whose riches fund the technological equipment upon which his alter ego depends). This duality is of central significance to the construction of the character and to the articulation of narrative conflicts and their resolution or deferral (for example, the constant threat and narrow avoidance of his unmasking motivates many of Batman's actions and relations, both public and private). But the significance of such duality is not restricted solely to the diegetic level; it is, in fact, centrally implicated in the formal and material logics of serialization, which involve the reader/viewer in an oscillation between an ongoing story or narrative world and its articulation in more or less closed, episodic forms—alternating between continuity and discontinuity, between inside and out, thus establishing a disjointed relation between one comic book, film, or television episode and the next.[2] Some of the twentieth century's most popular serial figures, like Batman, Dracula, Tarzan, Frankenstein's monster, or Sherlock Holmes, pushed this logic even farther, crossing over from one medium to another and enacting a properly 'parergonal' logic; as emphatically plurimedial figures, that is, they continually crossed the boundaries between print, film, radio, and televisual media, slipped in and out of their frames, and showed these frames to be reversible—very much in accordance with the multistable logic described by Jacques Derrida (1987) under the heading of the *parergon*.[3] The latter concept, which combines *para* (next to, besides) and *ergon*

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(work), refers to material or conceptual framing devices that can either focus attention on the work (a painting, a story, an argument) or, as might be the case with an ornately carved and gilded picture frame, can become the object of attention itself. Serial figures, who already embody this logic in their alternations between public and private personas or between civilian clothes and flashy, ornamental costumes, turn this reversibility back on the media of their articulation when they cross from one medium to another; transcending the particularity of any single iteration, such figures constitute themselves as higher-order media in which the transformations of first-order apparatic media (radio, film, television, etc.) can be traced in the manner of an ongoing—though not altogether linear—series.[4]

In the twenty-first century, however, the medial logics of serial figures have been transformed in conjunction with the rise of interactive, networked, and convergent digital media environments. In making the shift to digital and especially ludic media, the figure of Batman exemplifies this transition from a broadly parergonal to a specifically 'parergodic' logic. The latter term builds upon Espen Aarseth's (1997, p. 1) notion of the 'ergodic' situation of gameplay—where *ergodics* combines the Greek *ergon* (work in the double sense of labor or an artistic or other work produced by this labor) and *hodos* (path), thus positing nontrivial labor as the aesthetic mode of players' engagement with games. Ergodic media give rise to new forms of seriality that accompany, probe, and trace the developmental trajectories of the new media environment. These new serial forms and functions, as embodied by a figure like Batman, are fundamentally interactive, and they raise questions about the blurring of relations between work and play, between paid labor and the incidental work or 'immaterial labor' (Lazzarato 1996; Terranova 2000; Dowling, Nunes, and Trott 2007) culled from our leisure activities and entertainment practices, in the age of what Gilles Deleuze (1992) calls the 'control society' or of what Steven Shaviro (2010) calls 'post-cinematic affect.' Tracing Batman's transitions from comics to graphic novels, to the films of Tim Burton and Christopher Nolan, and on to the popular and critically acclaimed *Arkham* series of videogames (Rocksteady Studios 2009-2015), the episodic point-and-click *Batman: The Telltale Series* (Telltale Games 2016-2017), and the virtual reality game *Batman: Arkham VR* (Rocksteady Studios 2016), I will demonstrate that the dynamics of border-crossing which characterized earlier serial figures has now been re-functionalized in accordance with the ergodic work of navigating computational networks—in accordance, that is, with work and network forms that frame all aspects of contemporary life. With computational media devices serving as the platforms through which we engage the figure of Batman, whose own preoccupations with digitally enhanced perception and action form the very core of his superhero identity, our serial interactions with the figure qua avatar become a highly self-reflexive probing of our own multistable relations to the digital media environment.

Ultimately, this essay aims to contribute to the philosophical study of computer games by developing a media-philosophical perspective on the self-reflexive work of serialization in tracking the shift from what Bernard Stiegler (1998, 2008, 2011) describes as a 'mnemotechnical' media regime (dominated by recording technologies such as the phonograph and cinema) to the anticipatory regime of real-time audiovisual generation (whereby the retentional or past-orientation of traditional media is replaced by digital computation's protentional and future-oriented temporality).[5] Channeling this shift towards the emphatically *parergodic* situation of

interactive gameplay, computer games become the paradigmatic media objects—or agencies—of a philosophical reorientation, changing the terms of human-technological interfacing at both the individual and the collective level, including the political-existential level that Jean-Paul Sartre (2004) referred to in his later work as the 'seriality': the mutually alienated social existence that he saw as the default form of collectivity in the modern world. As we shall see, the new temporality of a computational media regime changes the parameters of social and political formations as much as it does those of cultural and textual forms. Coming to terms with these changes is the task of accounting for what might be called *the new seriality*.[6]

The Mediating Function of Serial Figures

In order to understand this media-philosophical reorientation, we need to understand first of all the media-historical role and function of serial figures as they operated in analog media. In a nutshell, this function can be summarized as follows: serially and plurimedially instantiated figures (like Frankenstein's monster, Tarzan, Dracula, Batman, Sherlock Holmes, or Fu-Manchu) self-reflexively traced out the unfolding trajectories of media change and transformation, exposing the dynamics of ongoing media-epistemic shifts to critical reflection and/or aesthetic-experiential awareness.[7] They did this by shifting from a medial and diegetic 'inside' to a plurimedial 'outside' or 'in-between,' thus transcending individual media and establishing intermedial and media-historical relations. In doing so, these serial figures 'mediated' media changes; that is, they negotiated transitions and sometimes helped media users to navigate new media spaces, for example by framing newness, novelty, or innovation against the background of the familiar—as when a familiar story was reframed or remade in a new medium—alternately highlighting either continuity or discontinuity and helping to 'make sense' of the change. This mediatory function, as I see it, is dependent on the medial constitution of serial figures—on their relations to first-order media (individual media in the normal sense of the word). In particular, it is essential that these figures are plurimedial—that they are not confined to a single medium but instead move between books, film, radio, TV, and other media. Serial figures therefore transcend any single medium in which they might be expressed, and because this is the case, they are themselves able, in effect, to serve as higher-order media within which the evolution of (normal, lower-level) media (like film, TV, comics, or novels) can be made visible. More generally speaking, these figures serve as platforms on which large-scale, 'environmental' shifts in the media landscape can be made available to critical or affective/aesthetic experience.[8] It is in this sense that serial figures can be said to figure the serial trajectories of media—that is, to provide an image or figural form of media's ongoing developments, changes, and evolution—rather than simply delineating characters within a given series.

Frankenstein's monster (Boris Karloff) and Tarzan (Johnny Weissmuller) as self-reflexive serial figures following the transition from silent to sound film.

A couple of examples will clarify these claims. In the early 1930s, in the wake of the transition from silent to sound cinema that dramatically altered the production and reception of film from about 1926 to 1931 (Crafton 1997), Frankenstein and Tarzan films used the established, familiar figures of the monster and the ape-man to foreground and probe the meaning, the effects, and the phenomenology of filmic sound. They did this by transforming two very articulate literary characters into inarticulate, moaning and yelling beings whose visual iconicity rests atop a somewhat confused, almost schizophrenic relation to sound. They drew attention to the still unsettled nature of filmic sound, which served as a medium for dialogue and other diegetic information, of course, but which also embodied a very recent media-technological innovation that had not yet been fully naturalized or stripped of its novelty. These uncanny creatures, only half-alive or half-human, further denaturalized sound to spectacular effect. In James Whale's *Frankenstein* (1931), Boris Karloff's mute monster contrasts sharply with the depiction in Mary Shelley's novel, originally published in 1818 and since proliferating in countless theatrical and literary adaptations, of a loquaciously poetic creature; but even more than problematizing the relation of film to novel as a 'faithful' or 'unfaithful' adaptation, the monster's muteness raises questions about the medium of film itself (Spadoni 2007; Denson 2014, 2016).[9] Deprived of speech, the monster on screen is reminiscent of a silent-film actor, who for technical reasons must communicate through gesture and pantomime rather than words. The transition from silent to sound film is thus problematized in the very figure of the monster. The same goes for Johnny Weissmuller's portrayal of Tarzan, who in *Tarzan the Ape Man* (Van Dyke 1932) is deprived on film of his noble and eloquent alter-ego Lord Greystoke and is instead reduced to an athletic body and the iconic yell by which he communicates with the animals of the jungle (Denson 2008).[10] Thus, both of these figures use sound in ways that call into question its naturalization, in the talkies, as a transparent or unobtrusive carrier of verbal information. Both the monster's moans and the ape-man's yell foreground a still untamed materiality of the sonic dimension, in effect reinforcing a by-then fading sense of the media-technological novelty of sound film while paradoxically embodying all that might be seen as primitive or obsolete in the silent cinema.

In this way, these figures maintained a complex relation to media change: they did not simply herald in the new; rather, they problematized change itself, opening a space not only for various judgments or opinions about the talkies but for various and conflicting perceptions and affective relations with respect to media change. Any fear, suspense, or pity that viewers might have experienced with regard to the monster, the ape-man, or to the fictional worlds they inhabit would be implicated in a complex set of feelings about the cinema itself and its recent transformations. It is in this sense that Karloff's monster and Weissmuller's ape-man can be seen as paradigm examples of the ambiguous mediatory function of serial figures: they 'mediate' media change through a negotiation that is anything but straightforward, and that implicates viewers in an effort to probe and navigate the phenomenological contours of the transitional space between the old and the new.

This has important consequences for thinking about the form and function of the type of seriality that's at stake here. Both Karloff's monster and Weissmuller's ape-man were immediately serialized: *Frankenstein* was followed by *Bride of Frankenstein* (Whale 1935), *Son of Frankenstein* (Lee 1939), *The Ghost of Frankenstein* (Kenton 1942), and so on until the series finally concluded with *Abbott and Costello Meet Frankenstein* (Barton 1948); *Tarzan the Ape Man* was followed by the sequels *Tarzan and His Mate* (Gibbons 1934), *Tarzan Escapes* (Thorpe, Farrow, McKay, Seitz, and Wellman 1936), *Tarzan Finds a Son!* (Thorpe 1939), *Tarzan's Secret Treasure* (Thorpe 1941), *Tarzan's New York Adventure* (Thorpe 1942), and a bunch of others. In both of these cases, though, the basic weirdness of the figures—their initial ambivalence with respect to diegetic and nondiegetic levels and to silent and sound-film medialities—was quickly reduced as the once-volatile icons were streamlined into increasingly predictable figures living in much less wonky universes than the ones they had been born into. But this is only a very narrow view of the figures' seriality. For beyond these explicit series of sequels, there is a broader realm of serial instantiation and proliferation in which both figures participated. Karloff's and Weissmuller's iconic embodiments joined much longer series of instantiations in a variety of media, including novels, theater, political cartoons, pulp fiction, silent film, comics, radio, and later television series. They contributed therefore to a higher-order series, one with even less concern for narrative continuity than the series of Tarzan and Frankenstein films of the 1930s. Constituted by the figures' often quite mechanically repetitive stagings, punctuated by minor and major variations in theme and above all medium, these higher-order series do not seem to lead anywhere, at least from a narrative point of view. On the other hand, though, they provide a record or index of media-historical transformations (Denson and Mayer 2018). From this perspective, the iconic versions of the monster and the ape-man are emblems of transition on a grander scale, snapshots of popular-cultural and media-technological processes that stretch from the early or mid-nineteenth century up until at least until the end of the twentieth.

Towards a Post-Figural Seriality

But if this general picture, according to which serialization processes are deeply intertwined with processes of medial self-historicization, still applies today in certain respects, something subtle and yet fundamental has nevertheless changed.

Describing this change is the primary task of this essay, which takes us from the twentieth into the twenty-first century and radically revises the model that I have described so far. The serial trajectory that I will be tracing here via the figure of Batman is again a trajectory of media change—most centrally, the transition from analog to digital or from cinematic to 'post-cinematic' media (Shaviro 2010; Denson and Leyda 2016). But it is also a trajectory of transformation with regard to the very parameters, forms, and functions of seriality and serialization processes within this new media environment. In a sense, it is a transition away from the serial figure as a mode of popular-cultural expression and medial self-reflexivity, and a shift towards something new: a 'post-serial figure,' perhaps. What I mean is not that seriality is over or that these new figures have somehow stopped being serial. Rather, the *post-* should be seen as a problematization, foremost, of the figurality of serial figures. The recent history of the Batman figure traces this shift towards, or intimates the coming of, a post-figural serial form.

This is a complicated shift, however, as classical serial figures like Frankenstein's monster and Tarzan were themselves characterized by an unstable, flickering sort of figurality, which Derrida's (1987) reflections on the notion of the 'parergon' help us to conceptualize. But the serial figure's digital-era counterpart, as we shall see with recent iterations of Batman, refocuses the broadly parergonal logic of the twentieth century into what I call a parergodic logic that corresponds to the post-figural, processual nature of digital mediation, computation, and interactivity.

First, let us look at the logic of the parergon, by which classical serial figures, as I have been describing them, are governed. Etymologically, as I mentioned earlier, the term *parergon* is composed of the prefix *para-* (next to, besides) and *ergon*, which derives from Greek for work. The parergon is thus literally 'next to the work,' marginal or supplementary to it, as a frame is with respect to a picture (or an *hors d'oeuvre* with respect to the main course of a meal). But the picture frame in particular demonstrates an essential reversibility: on the one hand, the frame serves as a background for the work, that is, as a ground for the image it frames and selects or presents as the figure at the center of our attention. On the other hand, the frame can also be absorbed into that figure when seen against the larger background of the wall, as might be the case when we take a broad view of a row of paintings on a museum wall before selecting one to observe more closely (Derrida 1987, pp. 60-61). The frame is therefore subject to repeated figure/ground reversals, and it is the same with serial figures: a figure like Frankenstein's monster is of course part of the diegetic universe outlined by a given film, for example, but it also exceeds that frame and partakes in a plurimedial series of instantiations. We never just see Frankenstein's monster; we see an iteration of the monster that stands in extradiegetic relation to Karloff's iconic portrayal and a host of others as well. Figure/ground reversibility is an essential precondition for plurimedial seriality as such, specifically enabling the foregrounding of mediality that allows the serial figure to serve as a figuration of media change.

Recently, however, things have changed. For one thing, media have changed. With the rise of digital media, the formerly discrete media across which serial figures were deployed as plurimedial beings—across film, TV, print, comics, etc.—come to mingle in much closer proximity to one another. What Henry Jenkins (2006) calls our 'convergence culture' responds by recalibrating narrative and cultural expression, by

coming up with new ways to tell stories (and to sell commodities) that take advantage of the coming-together of media in the space of the digital. This includes, among other things, new forms of serialization. In Jenkins's version, transmedia storytelling is inherently serial, but much less linear than a conventional television series might be, as it allows the reader/viewer/player/user to explore various facets of a story-world through movies, games, textual, and other forms, and it allows in many cases a variable order of consumption that corresponds, we might say, to the database structures in which digital information is stored and (interactively) accessed.[11] To explore a transmedial series is not the same as reading a serialized novel from beginning to end, because the point of this type of storytelling is to construct a coherent world or universe in which the media consumer can traverse various paths that will each complement one another and enrich their knowledge of the whole, thus providing a greater number of opportunities for affective (and, of course, monetary) investment in that world.[12] And while this might appear similar in some ways to the various entry points provided by classical serial figures' various retellings, the smooth consistency of transmedial serialities and the universes they construct actually appears hostile to the plurimediality at the heart of the classical figures' mediatory functions. As I have been suggesting, those functions depended on disjuncture and inconsistency between media as the pivot for the parergonal figure/ground reversals by which they could track and foreground media changes. Predictably, then, many once robust serial figures, like Fu-Manchu, have more or less withered and died in this new environment; others, like Tarzan, live on, but they seem to have lost their former edge. After Disney's *Tarzan* (Buck and Lima 1999) and Phil Collins's Broadway musical *Tarzan* (2006), Tarzan hardly has any of the threatening and unpredictable potential left that he had in Weissmuller's first film. This, it seems to me, is indicative of a new drive for standardization rather than, as was the case with classical serial figures, the activation and juxtaposition of often incompatible associations drawn from a figure's prolific serial career.

A figure like Batman, on the other hand, thrives in this environment. Remarkably, it does so in such a way as to be both immersed in the medial and cultural environment of digital convergence and interactivity and yet somehow resistant to the streamlining forces of transmedialization. Batman has been transformed irrevocably in his transition to the world of digital and post-cinematic media, and yet he maintains some of the rough edges between various medial instantiations, remains unsettled in his oscillations between films, videogames, and comics, which collectively fail to tell a coherent story. Formally, then, Batman resembles classical serial figures in this respect: like Tarzan or Frankenstein in the wake of the sound transition, Batman combines the new and the old; he is quick to don bright and shiny innovation, but he juxtaposes it with recalcitrant vestiges of the medial past. The parergonal potential that results from this mixture is different from that of earlier figures, though, as it is transformed in relation to the computational basis of digital mediation, by which plurimedial distinctions (or the borders between discrete media) are effaced. Without accounting for this computational basis, an approach like that of Jenkins only scratches the surface of the cultural and experiential changes associated with digital convergence. Looking at the recent history of Batman helps us to go deeper, for it traces the transition to computation as a total or all-encompassing environment for cultural and material life. What the figure reveals, though, is the progressive eclipse of figurality, upon which the parergonal reversals of classical plurimedial seriality depended; figurality, as in the figure/ground *Gestalt*-shifts I have described, is a

matter of perception and its objects, but these are circumvented through the processual workings and non-perceptual mediation of algorithmic computation.[13] Maintaining, through serial plurality, a space of marginal difference from which to track the emergence of these processes, Batman traces the transition from figural to post-figural forms and thus embodies the shift from a parergonal to a parergodic logic.

With the term *parergodics* or *parergodicity*, I am linking Derrida's notion of the parergon with Espen Aarseth's (1997) use of the term *ergodics* to describe processes and structures of digital interactivity. Ergodics, which Aarseth borrows from math and physics, is composed of *ergon* (work) and *hodos* (path, way). For Aarseth, the arduous or laborious path of ergodic interactivity marks a fundamental difference between digital media such as videogames or electronic literature on the one hand and traditional literature and narrative media on the other. For whereas the path of a narrative is fixed for the reader of a novel or the spectator of a film, for example, it must be generated in digital media through a cooperative effort between the user and the computational system. The signs composing the text of a videogame—including textual strings, visual perspectives, narrative and audiovisual events—are not (completely) predetermined but generated on the fly, in real time, as the player makes their way through the game. Ergodics, the path of the work or the work of the path, therefore describes the nontrivial labor that, according to Aarseth, is the basic aesthetic mode of players' engagement with digital games.

Expanding this idea beyond Aarseth's original frame of reference, the concept of ergodics can also be seen to ground a wider variety of interactive and participatory potentials in contemporary culture, where computational networks are implicated virtually ubiquitously in entertainment, social life, and work. Significantly, the borders between these realms are remarkably unclear (think of all the things people do on social networks and the virtual impossibility of distinguishing clearly between work activities and play), and it would seem that this has something to do with the indifference of computational media to the type of contents processed. This computational indifference to the phenomenological modalities of human experience—or to the differences between the analog media that at least partly corresponded to those modalities—leads, as Mark Hansen (2010) argues, to a divergence between mediation in its classical, perceptually oriented form and a new form of mediation that channels human affect into the process-oriented project of establishing ever greater networks of pure connectivity. This is the larger significance, I propose, of what Steven Shaviro (2010) calls 'post-cinematic affect': in contrast to the cinema, which was constituted by the storage and reproduction of perceptual objects, ergodic mediation involves acts of affective interfacing with the fundamentally post-perceptual realm of computation, which is algorithmic, distributed, and nonlocal, in contrast to the phenomenological basis of human embodiment.[14] Clicking on a YouTube video not only delivers perceptual content to your embodied eyes and ears, it also delivers computational content—information about affective, epistemic, and monetary valuations—to the routines of network-constitutive algorithms. In this environment, play activities not only involve the execution of nontrivial work, as Aarseth argues, but corporations and financial interests, among others, continually find clever ways to disguise work as play, to 'gamify' our labor, both paid and unpaid, while mining the data generated in the process in order to profit from both dedicated and incidental work. In this environment, as Matteo

Pasquinelli (2009), Shoshona Zuboff (2019), and many others have argued, virtually any investment of attention or affect will also generate a surplus value for Google, Facebook, & Co.—a value produced and accumulated parasitically, without regard for any significance we may attach to the contents of our digital interactions, by means of computational algorithms functioning on an altogether different level than the human concerns that feed them.

So, given this picture of computational or ergodic culture, I am skeptical of any utopian visions of the supposedly emancipatory effects of a popular 'participatory culture,' which might better be termed a 'parergodic culture,' since the cultural 'contents' of media become incidental, marginal, or reversibly supplemental to the nontrivial labor of interactive work.[15] On the other hand, though, the transition to a media environment of generalized ergodics has not been without para-ergodic margins from which to witness the shift, to take stock of it in the process of its occurrence. This is where the parergon meets ergodics, and it is in this reversible margin of parergodicity, neither completely inside nor outside the realm of computational ergodics, that I would like to situate the serial work of Batman from about the mid-1980s to the present. Emerging from the revisionary takes on the figure as he migrated from comic books to the more 'serious' or 'adult' form of the graphic novel, Batman films and games have traced the transition to generalized ergodics, and thus embodied the shift from parergonal to parergodic logics of seriality, in a number of ways: through the intrusion of video-based interactivity in cinematic forms; through diegetic technologies such as remote sonar sensing implemented through mobile computational devices, biometric data-mining and facial recognition software, or cinematic representations of nonhuman vision; and above all through the work of digital play itself.

Batman: From Cinematic to Post-Cinematic Serialities

The starting point for all of this is the appearance, in the 1980s, of graphic novels such as *The Dark Knight Returns* (Frank Miller 1986) and *Arkham Asylum: A Serious House on Serious Earth* (Grant Morrison 1989), along with *The Killing Joke* (Alan Moore 1988) and others. Batman was re-envisioned here as a much darker figure, setting the tone for a variety of iterations leading all the way up to the films by Christopher Nolan (2005-2012) and the more recent DC Extended Universe (beginning in 2016). The graphic narratives of the 1980s were part of a self-conscious transformation of the comics medium, part of an attempt not only to dissociate Batman from the campy TV show of the 1960s and a kids' stuff image, but to make comics generally a more palatable (if not quite respectable) medium for adults. So not just the tone and the darker image of Batman, but also this medial self-awareness fed into the explosion across newer media that begins with Tim Burton's 1989 film and runs through Nolan's films and the *Batman: Arkham* series of videogames (2009-2015).

In his analysis of *Arkham Asylum* (the graphic novel), James Wurtz (2011) highlights some of the strategies that can be seen as foundational for this line of development. Against the escapism and childish sort of fantasy associated with superhero comics, graphic novels like *Arkham Asylum* sought to create a greater sense of connection or contiguity with contemporary reality (including the media sphere of the 1980s) as part

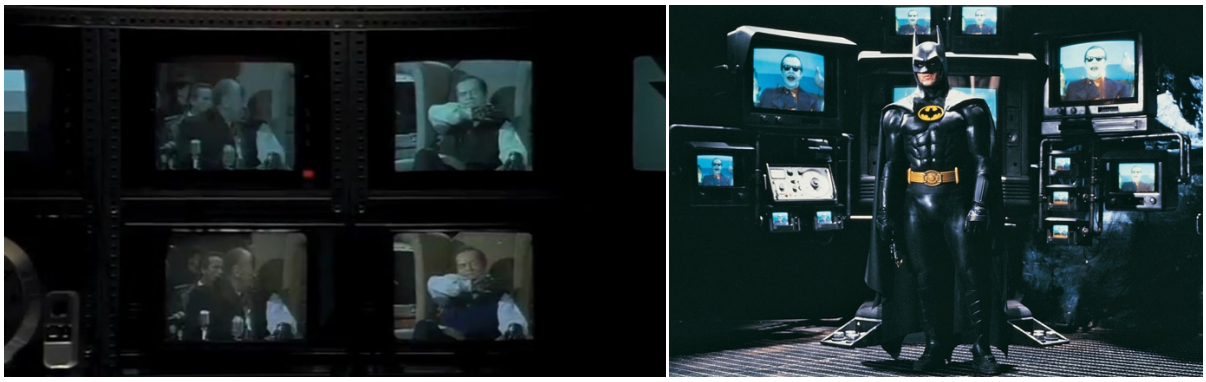
of the grittier image they painted of the world, and they coupled this with a self-reflexive exploration of the contiguity of images in the medium of graphic narrative. This self-reflexivity is enabled, as Wurtz puts it, by a relatively "thin plot" (2011, p. 556) that is not so much about character development but about the "spatialization and visualization of sanity and insanity" (2011, p. 556); these are depicted as basically reversible—or, as I have put it, parergonal. This reversibility is enacted most vividly at the end of the book, when Joker lets Batman leave the insane asylum after a series of non-climactic encounters with some of the villainous residents, saying "there's always a place for you here" and bidding him: "Enjoy yourself out there. In the Asylum." Inside and outside are marked as reversible, hence enacting a parergonal logic—one not solely directed towards a destabilization of constructions of sanity or normality but also aimed toward an "investigat[ion of] how we understand the role of space and the spatial in the comic" (2011, p. 557). Wurtz continues:

> Coming as it does at the end of the book, the Joker's comment both amplifies and undermines Batman's (and, more pertinently, the reader's) understanding of the preceding events and their meaning as well as highlighting the complex examination of the nature of space in the comic that underpins the narrative in manifold ways. (2011, p. 557)

I would argue further that, in this way, the comic reinforces the figure's new contiguity with the contemporary world by cementing a material-experiential bond—a self-reflexive bond that centers around the reader's navigation of the reversible boundaries between the contiguous images of panels on the page, between the spaces that these panels frame, and between the fictional and real-world spaces brought together at the point of the medium's reception. Moreover, the thematic destabilization of sanity and insanity is linked in the comic with the occurrence of media-technological transformations; one of the doctors in the asylum tells Batman:

> We're not even sure if [the Joker] can be properly defined as insane. […] It's quite possible we may actually be looking at some kind of super-sanity here. A brilliant new modification of human perception. More suited to urban life at the end of the twentieth century. […] Unlike you and I, the Joker seems to have no control over the sensory information he's receiving from the outside world. He can only cope with that chaotic barrage of input by going with the flow.

The insane asylum, one of the central sites of Foucault's panoptical disciplinary society, is marked as a relic of the past, giving way to a new form of sensibility attuned more closely to what Deleuze (1992) calls the 'control society,' the post-Fordist world of cognitive capitalism with its demands for flexibility or 'going with the flow.' Finally, I suggest, it is an attunement with the incessant flux of computation at the base of an emerging culture of ergodic interactivity.



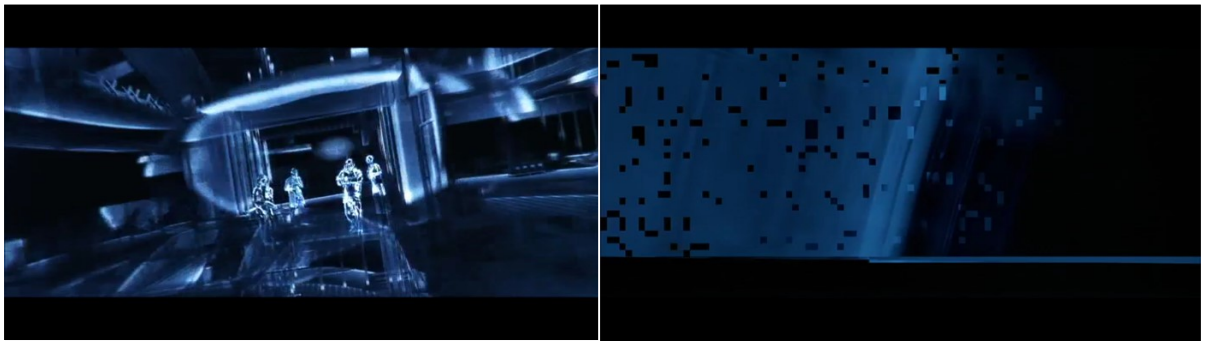
The Joker's televised address and Batman's multimedia console in Tim Burton's Batman *(1989).*

Tim Burton's film *Batman* of the same year (1989) follows up on this germinal intimation of the shift from parergonal to parergodic logics. As in *Arkham Asylum*, a negotiation of spaces configured as contiguous and reversible is activated in Burton's film, where a similar reversal of insides and outsides—this time marked explicitly as medial spaces—occurs during Joker's televised address to Batman and the people of Gotham. Here the medium takes on an unexpected materiality as the Joker shoves the mayor's image off the screen, and a crucial reversal is visualized as a shot of several contiguous studio monitors gives way to the various screens united in Batman's multimedia console. It is here, with a sudden freeze frame interaction, that Batman enacts a further parergonal reversal: while the film's editing leads us to believe that Bruce Wayne, like all the citizens of Gotham, is viewing the Joker's address live, he pauses the recording, in effect pausing the continuity of the film itself. And with this seemingly insignificant difference it introduces between live and recorded images that can be rewound, fast-forwarded, and searched, Batman's pausing of the image announces, in effect, an entry into the interactive space of post-cinematic media. This is the first step towards the reconceptualization of images and visual media as purely processual, computational, and no longer tied to perception as its objects. Later, in the twenty-first century, when computational technologies are implemented more broadly in the actual production of visual media, Nolan's films and the Batman videogames, with their more thorough and explicitly interactive exploration of digital spaces, will definitively transform parergonal logics into parergodic ones.

An updated computational console with biometric, forensic, and other capabilities on display in Christopher Nolan's The Dark Knight *(2008).*

For example, Nolan's second film, *The Dark Knight* (2008), can be seen as a serial continuation not only of *Batman Begins* (2005), the first film in Nolan's trilogy, but also an updating of Burton's early exploration of Batman's ergodic mediality. Most centrally, Nolan's film updates Batman's computer console and places it in the middle of the caped crusader's pursuits to restore order to Gotham. The film also spends a considerable amount of time foregrounding this computational wonder machine, which as a visual attraction alternates reversibly with the film itself and serves to foreground its CGI-based spectacles. Within the frame of the narrative, a new range of computational powers is demonstrated, including biometric facial recognition (e.g. the console shows the Joker's face overlaid with vectors and anchor points) and computational forensics (e.g. fragments of a shattered bullet are digitally reconstructed, pieced together with such detailed precision as to reveal even the perpetrator's fingerprint on it, which is of course identified automatically in a relevant databank). Early in the film, Bruce Wayne's tech guy Lucius Fox demonstrates to him a new technology, utilizing a cell phone to emit an inaudibly high frequency capable of mapping a remote location by means of digitally enhanced sonar. This sets the stage for the film's climax, when the sonar program is spread, virus-like, to the cell phones of all of Gotham's inhabitants. Through this network, which feeds into Bruce

Wayne's central console, now equipped with a giant wall of display devices, Batman is able to 'see' the whole city. This is a disembodied or nonlocalized 3D computer-graphics vision generated through a distributed, nonhuman sensory form that is ergodic in the sense of being a computational process rather than a matter of perceptual objects. Seeing through the eyes of a machinic network, Batman is able to find the bad guys just in time for the final showdown. At a decisive moment, though, Batman's 'vision' machine crashes—and the event is presented to us in first-person perspective, crucially drawing attention to the mediation of our own vision through computational processes. Here the parergonal reversibility between diegetic and medial levels is rendered thoroughly parergodic, as we are made witness to an event that challenges the perceptual frames delineating the narrative and our very ability to engage or disengage visually with the medium.

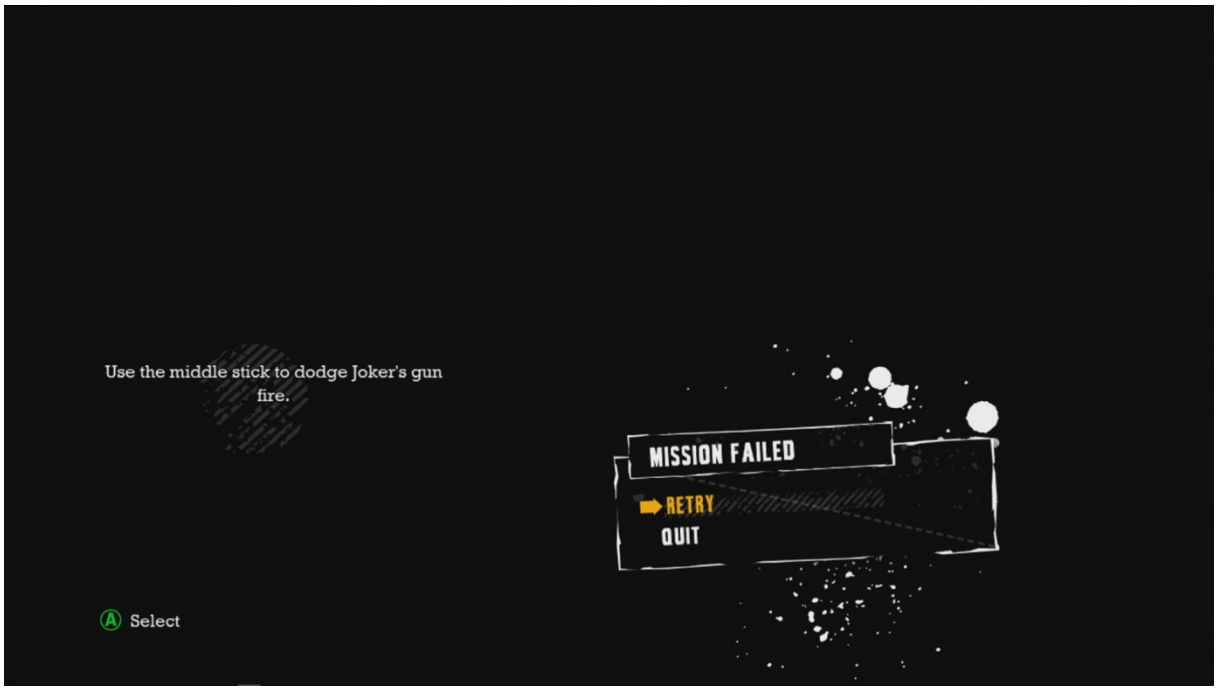


Batman sees through walls with computationally powered echolocation, and a system crash (marked by digital compression artifacts) challenges visuality in Christopher Nolan's The Dark Knight *(2008).*

But the scene anticipates an even more intense experience of parergodic involvement in the videogame *Batman: Arkham Asylum* (Rocksteady Studios 2009). Here, the specifically parergonal exploration of spatialized boundaries between sanity and insanity that goes back to the graphic novel of the same title is translated into a narrative that weaves back and forth between the diegetic 'reality' and hallucinations induced by the villain Scarecrow. The player, who has to act in order to stay alive, can never be sure when one of these hallucinatory states has begun, and he or she therefore gets drawn into such illusions until an abrupt awakening takes place following a victory (in one of the boss battles) or its deferral. Even more poignantly, though, there is a total break with all narrative, perceptual, and actional involvement at one point late in the game, when the images on the screen freeze and display digital artifacts and the soundtrack begins to skip like a scratched CD. Suddenly, the screen goes black and the game literally reboots—or at least I could have sworn that my PlayStation restarted at this moment, while a feeling of panic gripped me. When the game restarts, we see images reminiscent of the game's opening scenes—thus compounding a sense of fear that either my disk or my machine is broken, and that all my progress in the game, by this time perhaps some 10 or 20 hours depending on play style, is lost and will have to be repeated. But this time things are backwards: now the Joker is in the driver's seat, escorting Batman into Arkham Asylum. This cutscene gives way to an interactive sequence where the player controls the Joker, thus instituting a weird sort of actional identification with the villain, who then turns and points a gun directly at the player, whose vision is suddenly and somewhat

confusingly realigned with Batman's point of view. There is no way to avoid death, and we see a "Mission failed" screen with the following tip: "Use the middle stick to avoid Joker's gun fire." Only, there is no middle stick on a standard PlayStation or the Xbox controller. This whole sequence therefore emphasizes the point of interface as a reversible margin where computational or ergodic media converge as both the thematic/actional 'content' as well as the material platform for play. And the quasi-glitch and simulated crash of the game focus and channel this attention to reveal the significant work involved in ergodic play; the very real panic and extradiegetic fears activated here highlight the cognitive and physical labor invested by the player, as well as the precariousness of the digital platform for the storage or accumulation of such work, over which we have little individual control, though our activities are sure to generate profit for the corporations holding ownership of intellectual properties (like DC Comics and its parent companies Warner Bros. and AT&T for Batman), of proprietary software and hardware (like Sony and Microsoft for the PlayStation and Xbox consoles we are operating), or the algorithms that will mine our activities for surplus value (like Alphabet/Google when we post a gameplay video on YouTube or comment to express our opinions, affects, or values).

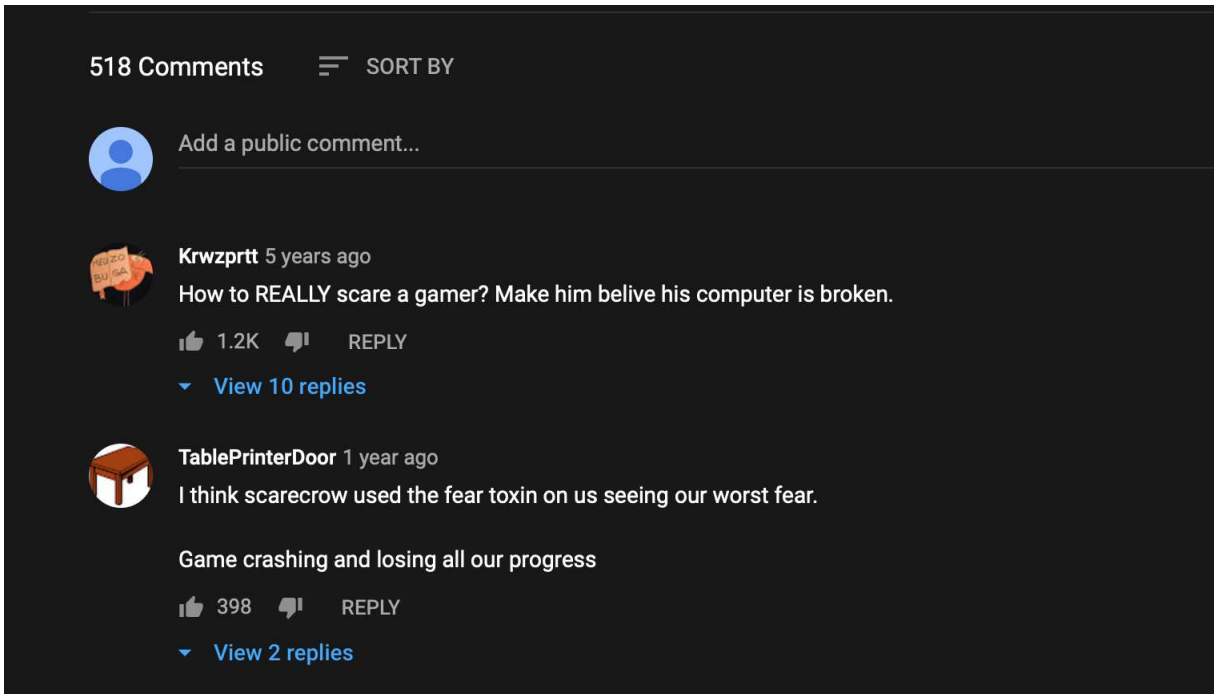
A simulated glitch and system crash in Batman: Arkham Asylum *(Rocksteady Studios 2009).*



"Mission Failed" screen and the tip to "Use the middle stick" in Batman: Arkham Asylum *(Rocksteady Studios 2009).*

As the comments on a YouTube clip of this sequence revealed to me, I was not alone in having experienced anxiety, fear, and frustration over this apparent crash. A video titled 'Batman: Arkham Asylum – Glitches!' (딸바람 2010) posted on December 5, 2010 garnered comments such as the following:

> "When this mission happened (screen freezing) I thought my Xbox was broken"
>
> "when i first got to this part, i thought that my xbox had overheated or something"
>
> "When this happened I almost broke my controller"
>
> "I thought the same thing, and I was like dear god no, especially at 00:15"
>
> "I thought my game broke when that happened."
>
> "I thought my game broke at 00:15"
>
> "Thought It Was A GLITCH THAT I ALMOST PASSED OUT"
>
> "i thought i broke my tv at 00:15"
>
> "when this happened i thought the game broke, or I broke the xbox"
>
> "I thought the servers were fried and I was like W.T.F"



User comments on a YouTube clip of the simulated glitch.

A comment on another clip of the same sequence put it succinctly: “How to REALLY scare a gamer? Make him [*sic*] believe his computer is broken” (Gyoru 2009). In these exchanges, the individual experience of ergodic labor and infrastructural malfunction opens onto a social dimension of parergodic reflection. Significantly, it is here that the intermedial seriality of the sort I have been tracing (the narrative and iconographic relations between comics, films, and games) comes into contact with another conception of seriality: namely, the social-political dimension of alienated collectivity that Sartre (2004), in his later Marxist-inflected work, sees as the default mode of sociality in the modern world, where virtually all interpersonal relations are mediated by commodities and infrastructures of the built environment. Sartre describes a mundane scene of people waiting at a bus stop:

> These people—who may differ greatly in age, sex, class, and social milieu—realise, within the ordinariness of everyday life, the relation of isolation, of reciprocity and of unification (and massification) from outside which is characteristic of, for example, the residents of a big city in so far as they are united though not integrated through work, through struggle or through any other activity in an organised group common to them all. (Sartre 2004, p. 256)

That is, these people just happen to be at the same place at the same time; they have no common goal that would define them as a ‘group,’ and thus their particular place in line—their position in the ‘series’ defined by the queue—is interchangeable with that of everyone else. The loose grouping of the Sartrean seriality is ordered simply by the constraints of material objects and infrastructures—the finite number of seats on the bus, the ticket machine that assigns a place in line, the limited space underneath the bus stop where one might take shelter from rain, etc. The seriality arrays itself around what Sartre calls the ‘practico-inert’ in recognition of the way structures and technologies store human praxis, or past living labor, while condensing it into inert objective form. In the practico-inert, the active component of

praxis carries over into the present and towards the future, as the built environment and its technologies present themselves as instruments to be utilized towards the realization of our goals; but the inertia of the material object and its rootedness in the past (the time of its manufacture) stands as an obstacle, resisting the facility of use with a 'coefficient of adversity.'[16] Alienation and political impotence are therefore not just psychosocial shortcomings of the seriality, but rather materially enforced by way of the built environment, with its underlying exigencies and scarcities. However, if the infrastructure breaks down, or if the bus never arrives, there is a chance that this alienation might be overcome; outraged at the inconvenience, the people at the bus stop might organize, start protesting and demanding change. The loose collective of the seriality might be polarized into the robust collective of the group.

And while it seems unlikely that the simulated glitch in *Batman: Arkham Asylum* could prompt such genuine political activity, we should note the way the sequence focused players' attention on the material infrastructures of their experience (their affective relations to the console, the controller, the optical disk and digital data of the game, the television set, and the network servers) and how this common experience prompted them to communicate and commiserate with one another on the online platform of YouTube, thus taking a small step beyond the anonymity and isolation of single-player serialized gameplay. So, while this may be a merely germinal form of collectivity characterized by the very weakest of ties (such as might be afforded by the ordering constraints of the notoriously toxic environment of YouTube's comments section), it is nevertheless highly significant for thinking about the conditions and obstacles of sociality in a computationally networked world.

Time-Shifted Seriality

Finally, we must acknowledge that the foregoing example of the simulated glitch, despite its aesthetic foregrounding of interface and infrastructure and its provocation of an emergent social relation, also brings to light a further obstacle to political agency: contemporary parergodic culture is designed to skim value off the top of any and all activity, including our attempts at political action, expression, or organization. The problem is not just that YouTube's comments section is toxic, or that its interface and formal layout are not conducive to effective communication, but that there is evidently no way to step outside of the essentially serializing (in Sartre's sense) structures of the digital environment. This is because of a fundamental material and temporal shift in the medial infrastructure of experience, which is no longer that of Sartre's practico-inert.

Rather than inert objects, digital devices and networks are dynamic and responsive. Our media no longer simply record or preserve past experience and labor, as might be claimed for the 'mnemotechnical' functions of phonographic or cinematic media; today, our screens generate audiovisual contents in 'real time,' exhibiting a dynamism based in feedback loops that incorporate present use (including the casual or incidental labor of clicking, scrolling, and playing games) into the ongoing production of value. Moreover, screen-phenomena are generated out of predictive, future-oriented processes (ranging from high-level autocorrect algorithms, to mid-level motion-estimation protocols in video compression-decompression, to low-level processes like speculative execution) that actively anticipate and thereby shape the

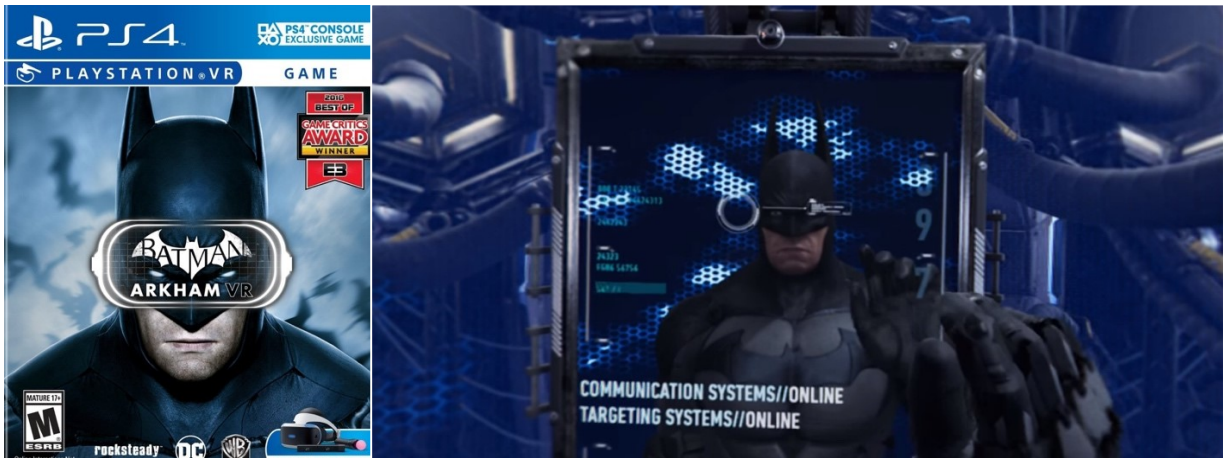
perception and subjectivity of the user. This anticipatory logic is at the heart of computational gameplay, which depends on microtemporal operations that predict changes at the level of the pixel in order to optimize display framerates and data transfers over networks with limited bandwidth.[17] Instantiating a new temporality that transcends the physical inertia described by Sartre, videogames therefore also exceed the past-based or retentional forms of analog media, as described by Stiegler (2011); videogames' much-discussed 'interactivity' in fact involves protentional, predictive processes that endow them with greater agency as their anticipatory dimensions intertwine with our own being-towards-the-future to jointly produce the events on the screen.[18] This implies a radical revision of individual human-technology relations, but also a changed basis for social relation, owing to a fundamental transformation of the material lifeworld: the practico-inert, while still very much a condition of our social existence, has given way to a new condition that might be termed the *practico-alert*. Alertness, always being ready, is both a technical fact of predictive computation and a constant demand on our attention; present experience no longer takes place against a neutral background of the past distilled in the form of inert objects and built environments, but in concert with 'smart' devices, even 'smart cities' that anticipate our every move. Our predictive technologies, always alert to the contingencies of the ever-shifting future, demand that we too are always alert—an experience that, upon reflection, should be familiar to players of videogames.

Cryptographic Sequencer in Batman: Arkham Asylum *(Rocksteady Studios 2009).*

But finding the space for reflection amidst ergodic totalization is precisely the problem, and it is the reason why it is of paramount importance to maintain a *para*-ergodic margin of reflexivity. The self-reflexivity that I have been charting in Batman's trajectory towards a kind of parergodic, post-figural seriality opens that margin by providing what McKenzie Wark (2007), following Alexander Galloway (2006, p. 91), calls 'allegorithms'—a portmanteau of *allegory* plus *algorithm*—that enable us to grasp the workings of a technocapitalist lifeworld, a generalized 'gamespace,' from

within. Most directly, games like *Batman: Arkham Asylum* and its sequels *Arkham City* (Rocksteady Studios 2011) and *Arkham Knight* (Rocksteady Studios 2015) do this by having players enact technical operations that overlay and/or collapse the difference between diegetic representation and computational gameplay. For example, in these games Batman is equipped with a 'cryptographic sequencer' gadget that visually resembles the layout and form factor of the player's game controller and maps the player's manipulation of left and right joysticks onto the avatar's motion in order to crack codes and hack digital devices; here, audiovisual and haptic feedback, combined with the mirroring of Batman's technological capacities and our own engagement with the digital gadgetry of the controller, lead to a kind of *mise-en-abyme* that seems calculated to heighten immersion in the diegetic world but can as easily expose to us the physicality of our ergodic labor.

If this can be seen as an 'allegorithm' of our ubiquitous imbrication with digital technologies, the serialized nature of Batman ensures that these videogames also provide 'allegorithms' of the new seriality itself—in both its (inter)medial and social dimensions. For example, the episodic point-and-click *Batman: The Telltale Series* seems, on the one hand, to revert to a much more traditional understanding of seriality; with its narrative focus and explicitly serial segmentation into 'episodes' and 'seasons,' the game remediates the cultural forms and serialized release schedules of serial literature, pulps, comics, and television programs. But against this background, the game exposes the contemporary future-orientation of seriality more generally. Compare the dynamics of feedback that, in the form of letters to the editor and related mechanisms, have been a standard part of serialized storytelling since the nineteenth century; as Frank Kelleter (2017b, p. 25) argues, these interactions between authors and readers turned serial fictions into something like 'self-observing systems', with agents exerting influence on one another and on the ongoing course of the serial events. In the *Telltale* series, however, this previously social function of serialization is now folded into the cybernetic architecture of computation: the player is allowed to exert influence on the ongoing narration by making choices along the way (choosing from among a small set of periodically presented options regarding dialogue or other actions), and these choices will change characters' personalities, alter their behaviors, and trigger larger narrative events (just the kind of things that a reader might, in days past, have written to an author about). But here the influence is registered automatically, by means of algorithms rather than human interlocutors, as the totality of the branching narrative has been mapped out in advance, all of the players' inputs anticipated ahead of time. Thus, while player choice plays a major role in this interactive serial fiction, the feedback loop has been tightened and taken out of the human time of perception and the social space of communication. This might be seen as a dehumanization of the process, part of the general shift from memorial to protentional media that characterizes ergodic culture and complicates individual and social agency. As if in recognition of this fact, Telltale's *Batman* compensates with "Crowd Play", a feature which reintroduces social interaction by delegating decisions to a group of local or remote viewers who use networked computers or mobile devices to vote on in-game choices, which the player can opt to review or accept by default. But even so, the game bears witness to radically altered social parameters of seriality, operating now on the basis of algorithmic processes and statistical aggregations.[19]



Self-reflexive packaging and a mirror reflection in Batman: Arkham VR *(Rocksteady Studios 2016).*

Whereas *Batman: The Telltale Series* marks the difference between old and new serialities by means of a mutation of narrative, *Batman: Arkham VR* does so by means of an operational exploration of the practico-alert and its transformation of contemporary praxis. Indeed, perhaps the sole appeal of the game lies in its cultivation of what Neil Harris (1973) has called an 'operational aesthetic,' an interest in how things work, by focusing our in-game activity around the use of Batman's gadgets (his Batarang, grappling hook, and forensic scanner) to solve a set of puzzles.[20] Played in first-person perspective, and situated narratively in between the *Arkham City* and *Arkham Knight* installments of the main *Arkham* series, the game's operational aesthetic is in fact directed towards the operation of our own equipment—the novel VR headset and controllers that we use to act within the virtual world. Like many VR games, *Arkham VR* is ultimately little more than a demo for this hardware. In this respect, it follows in a long line of media that exploit established serial figures and produce serialized contents in order to promote adoption of new platforms and apparatuses.[21] But the novelty that is foregrounded here, our thorough embodiment of the hero and the total mapping of avatar/image onto our own body schema, is possible only on the basis of the shift from retentional to protentional media and the tightening of the feedback loop that constitutes the practico-alert. Early on, the game demonstrates this embodiment potential but also provokes an alienating shock when we catch a glimpse of ourselves in a mirror; our every motion is perfectly matched, but the body is not 'mine'.[22] We are given ample time to play with this uncanny spectacle, though, which foregrounds the tightest loop of futural calculation, encompassing both movement and perception, and demonstrates the apparatus's fascinating but unsettling ability to capture and act upon our bodies directly, prior to cognitive-perceptual registration on our part.[23] This entanglement of agencies, the very crux of the practico-alert, implies that we have been anticipated in advance as our consciousness lags behind the microtemporal operation of the machine. The shock of mis/recognition in the mirror provides an affective clue to this pre-subjective shift in the very basis of perception and praxis.

Batman's workstation in Batman: Arkham VR *(Rocksteady Studios 2016).*

The banal reality of digital labor: searching databases on the Batcomputer in Batman: Arkham VR *(Rocksteady Studios 2016).*

Significantly, however, the type of praxis around which *Arkham VR* revolves is, for the most part, incredibly boring. There are none of the fighting and fast-paced action that characterize the games in the main *Arkham* series. Instead, what we spend most of our time doing is indistinguishable from work. We scan crime scenes with digital gadgets and search databases on the Batcomputer. The sheer banality of the latter seems to foreshadow the more likely, and less spectacular, future of AR/VR as a

'productivity' application, allowing us to access our virtual workspaces from home—and thus chaining us to our desks no matter where we may go. In what must surely count as an allegorithmic mapping of the operational aesthetic onto the embodied and social production of value under contemporary capitalism, *Arkham VR* embodies a parergodic seriality in several senses at once: it stands playfully next to (*para*-) the ergodic lifeworld that threatens to swallow us whole, but by foregrounding the operation of the digital in the form of work (*ergon*), the game opens a margin from which we might reflect on an underlying serialization of gesture (a standardization of movement, which is required for the hardware to recognize or classify our gesture, thus continuing the alienation and mechanization of movement at the heart of factory production—the original source of serialized production), which is transforming the shape of *hodological* space (the non-Euclidean, praxis-oriented space of real movement, defined in terms of the 'coefficients of adversity' and affordances of technologies and the built environment) and social space alike.[24] Regarding the social dimension, VR raises big questions about (Sartrean) seriality in the age of the practico-alert: will these technologies lead to a more generalized form of alienation, where everyone is standardized in accordance with the microtemporal generation of the virtual environment and the limited bandwidth allowed for the exercise of agency in pre-calculated roles, or do they herald new freedoms and social possibilities, where we can overcome geographical and cultural barriers to meet in this new space? While I am dubious of the utopian alternative—after all, we have seen where the Internet has led us—the parergodic potential of serialization processes casts doubt on the dystopian totalization of ergodics as well. In the case of *Arkham VR*, it is the imperfection of the mapping—the uncanniness of seeing 'our' reflection in the mirror, or the strangeness of *not* seeing our body when we look down at Batman's utility belt and find it floating oddly in space—that announces embodiment as one of the most significant of parergodic margins, or that which has not yet been fully incorporated into the ergodic system. Finally, this marginality of embodiment, combined with the drudgery of computational labor in the game, point to the fragility of the technomasculine subjectivity that Batman stands for and that computer games have been training their players to embody for decades.[25] While it is surely unintentional, *Arkham VR* thus stages the failure of a serialized identity based in patriarchal 'mastery' of technology at the same time it exposes the limits of ergodic totalization, or computational technology's 'mastery' of human existence.

More generally, the parergodic work of seriality, as I have traced it here with respect to Batman's navigation of digital and interactive media environments, will remain the necessary work of producing ever new margins for reflection, reflexivity, and agency. Serialized media are important in terms of indexing changes in perception, embodiment, and social relation. In their ludic forms, as I have argued here, they help us to ask questions about our present and future relations to a world restructured by predictive media, and they challenge us to think about how exactly we want to embody this new seriality.

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Notes

[1] On seriality as a formula of repetition and variation, see Eco (1979) and Eco (1985). On seriality in popular culture more generally, including its nineteenth-century origins and later transformations, see Kelleter (2017a), Kelleter (2012), Allen and van den Berg (2014), and Loock (2014).

[2] I have explored these dynamics in Denson (2013).

[3] On serial figures, see Denson and Mayer (2018) and Mayer's (2013) extended study of the Fu Manchu figure.

[4] For an analysis of these dynamics in relation to Dracula as a serial figure, see Denson and Mayer (2017).

[5] I argue this point at length in Denson (2020).

[6] The phenomenological, aesthetic, and political implications of this transformation of media technologies from a recording-based or retentional to a predictive or protentional functionality is the topic of a current book project, tentatively titled *The New Seriality: Political Aesthetics in a Digital Lifeworld*.

[7] I intend the term 'media-epistemic shift' in a Foucauldian sense, implying the replacement of one medial episteme—the medial regime of the seeable and sayable—by another. See Foucault (2010).

[8] On media as an environment, see Hansen (2006), which expands and complicates a basically McLuhanesque idea; cf. McLuhan (2001).

[9] Cf. Denson (2014); Robert Spadoni (2007). See also my video essay, "Sight and Sound Conspire".

[10] For more on Tarzan as a multifaceted and plurimedial figure, see also the other contributions to Krüger, Mayer, and Sommer (2008).

[11] On the database as (the model for) cultural forms, see Manovich (1999) and Vesna (2007).

[12] See Ryan (2015) for a concise exploration of narratological difficulties associated with transmedial fragmentation, as well as questions about the term's use as a description of marketing, rather than narrative, strategies.

[13] This is one of the central arguments of Denson (2020).

[14] On embodiment and its role in the viewing of cinematic images, as well as the way that this gives way to a more 'diffuse' form of embodiment in electronic media, see Sobchack (1992 and 2016).

[15] See also Brinker (2016) for a less-than-optimistic view of the exploitative potential of 'participatory culture.'

[16] This is a term that Sartre, as early as 1943 in his magnum opus *Being and Nothingness*, had borrowed from Gaston Bachelard in recognition of the friction that materiality and embodiment introduced into phenomenology (Sartre 1992, p. 324)

[17] See, for example, Cannon (2012) on the use of speculative execution in gaming contexts.

[18] I argue this point in chapter 3 of Denson (2020).

[19] On statistical aggregation in Telltale games, see also Sulimma (2014).

[20] On the operational aesthetic as a component of an earlier form of seriality, that of film serials of the 1910s, see also Brasch (2014).

[21] See, in particular Hagedorn (1988).

[22] For a similar phenomenon in a non-VR game, *The X-Files Game* (1998), see Laurie Taylor (2003).

[23] As I argue in Denson (2020), such a pre-personal impact can be thought in terms of Bergson's (2007) affective body qua 'center of indetermination' or in terms of Merleau-Ponty's (2002 , p. 92) 'inner diaphragm' prior to the differentiation of objective stimulus and subjective response. It can also be conceptualizted in terms of what Hayles (2017) calls the 'cognitive nonconscious'.

[24] On hodological space, see Lewin (1934), subsequently taken up by Sartre (1992).

[25] On videogames as a training ground for 'technomasculinity,' see Kocurek (2015).